THREE NEW SPECIES AND THREE NEW RECORDS OF GOBIES FROM NEW CALEDONIA

by

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ABSTRACT. – Six species of gobies from New Caledonia are reported ; three are new species. *Zonogobius capostriatus* n.sp. is characterised by : LL 27-28 ; TR 8-9 ; D VI, I 9-10 ; A I 8 ; P 18-19 ; GR 4+1+8 (9), and by a unique colour pattern on its head : wide, brown, longitudinal bands on yellowish background. *Oplopomus spinosus* n.sp. is characterised by : LL 24 ; TR 7 ; PreD 4 ; D VI, I 10 ; A I 9 ; P 18 ; five spines on pre-opercle, the lower one is thicker and longer than the others, and a long filament on the tip of the fourth dorsal spine. *Amblyeleotris novaecaledoniae* n.sp. is characterised by : LL 75 ; TR 22 ; D VI, I 14 ; A I 14 ; P 18 ; GR 1+1+8, pelvic fins partly fused and a unique colour pattern on caudal and pelvic fins. The other reported species are : *Cryptocentrus lutheri* Klausewitz, which is known from the Red Sea and the Persian Gulf only, *Istigobius aestuarius* (Smith), which is known from Western Indian Ocean and *Gnatholepis cauerensis* (Bleeker) which is widespread over the Indian Ocean and the Western Pacific Ocean.

RÉSUMÉ. – De Nouvelle-Calédonie, l'auteur signale six espèces de Gobies, dont trois d'entre elles sont nouvelles : *Zonogobius capostriatus* n.sp., caractérisé par : LL 27-28 ; TR 8-9 ; D VI, I 9-10 ; A I 8 ; P 18-19 ; Br 4+1+8 (9), ainsi que par une coloration particulière : sur la tête, larges bandes marrons sur fond jaunâtre ; *Oplopomus spinosus* n.sp., caractérisé par : LL 24 ; TR 7 ; PreD 4 ; D VI, I 10 ; A I 9 ; P 18, ainsi que par 5 épines sur le préopercule, la plus inférieure étant la plus grosse et la plus longue ; d'autre part, la quatrième épine de la nageoire dorsale se prolonge par un filament ; *Amblyeleotris novaecaledoniae* n.sp., caractérisé par : LL 75 ; TR 22 ; D VI, I 14 ; A I 14 ; P 18 ; Br 1+1+8, ainsi que par des nageoires pelviennes partiellement réunies et une coloration particulière des nageoires pelviennes et caudale. Les autres espèces sont : *Cryptocentrus lutheri* Klausewitz connue uniquement de la Mer Rouge et du Golfe Persique ; *Istigobius aestuarius* (Smith) connue de la bordure occidentale de l'Océan Indien, et *Gnatholepis cauerensis* (Bleeker), connue de l'Océan Indien et de la bordure occidentale de l'Océan Pacifique.

A fish collection made by M.-L. Bauchot (Muséum National d'Histoire Naturelle, Paris) in New Caledonia at the beginning of 1979 has broadened our knowledge of the fish fauna of this part of the tropical Pacific, a region which has been investigated much less than the Indo Australian archipelago or the Western Indian Ocean. The geographic position of this Island and its distance from other better known areas render the study of its fishes very interesting both from zoogeographical and taxonomical points of view. The study of the gobies from New Caledonia yielded three new species of the genera *Zonogobius* Bleeker, *Oplopomus* Ehren-

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berg (in Cuvier and Valenciennes) and *Amblyeleotris* Bleeker, as well as new records of three species, *Cryptocentrus lutheri* Klausewitz and *Istigobius aestuarius* (Smith), these two being previously known only from the Indian Ocean, and the third one *Gnatholepis cauerensis* (Bleeker), from Japan to the eastern coast of Africa.

Abbreviations used :

A,D,P = anal, dorsal, pectoral fins ; BD = body depth ; HL = head length ; LL = number of scales along the body ; PreD = number of predorsal scales ; SL = standard length ; TL = total length ; TR = number of transversal scale rows ; GR = gill rakers.

Zonogobius capostriatus new species

(Figure 1)

Holotype : MNHN 1980-1072, New Caledonia, Canala Bay, muddy sand bottom, roténone, Randall, Maugé & Bauchot coll., 7.1.1979.

Paratypes : MNHN 1980-660, 4 spec., New Caledonia, Canala Bay, muddy sand bottom, roténone, Randall, Maugé & Bauchot, coll., 7.1.1979.

Detailed counts and measurements are presented in Table I.

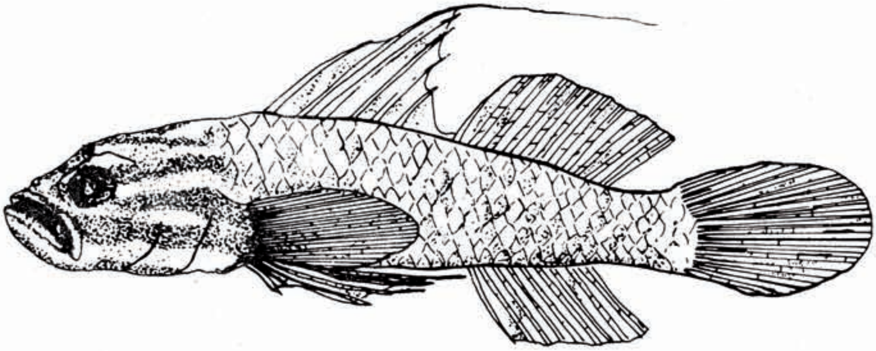

Fig. 1. – *Zonogobius capostriatus* new species. Holotype MNHN 1980-1072.

Description

LL 27-28 ; TR 8-9 ; D VI, I 9-10 ; A I 8 ; P 18-19 ; V I 5 ; GR 4+1+8(9). SL 81-85 % of TL ; BD 16-17 % of TL and 19-20 % of SL ; HL 21-22 % of TL and 25-27 % of SL.

Body elongate and compressed. Head compressed with convex dorsal profile. Snout short. Mouth very oblique. Maxillae extend to below front of eye. Tongue truncate. A band of conical teeth on each jaw. The inner and outer teeth on both jaws are very enlarged, canine form. Gill opening wide, extends to below mid eye.

Ctenoid scales cover the body. No scales on head, predorsal region and the bases of the pelvic and pectoral fins. First dorsal fin higher than the body, its second spine is the longest. The tip of this spine ends with a long filament which extends to above the caudal peduncle. The second dorsal fin inserts above the anus.

Table I. – Counts and measurements (in mm) of the holotype and paratypes of *Zonogobius capostriatus* n.sp.

	Holotype MNHN1980-1072	Paratypes MNHN 1980-660			
Total length	24,0	25,5	23,6	23,0	22,2
Standard length	19,6	20,8	20,0	18,7	18,4
Body depth	4,0	4,2	3,8	3,8	3,6
Head length	5,2	5,5	5,0	4,8	4,6
Scales in longitudinal series	27	27	27	27	27
Scales in transverse series	8	8	9	8	9
Dorsal fin rays	VI, I 10	VI, I 10	VI, I 10	VI, I 10	VI, I 10
Anal fin rays	18	18	18	18	18
Pectoral fin rays	18	18	18	18	18
Gill rakers	4+1+9	4+1+9	4+1+9	4+1+9	4+1+9

It is almost as high as the depth of the body. Anal fin is rounded, and shorter than the head. Pelvic fins, fused at their bases with a delicate membrane, reach to the insertion of the anal fin.

Colour (preserved)

Body brownish with small light spots. Head with longitudinal brownish bands on yellow background. Caudal fin with 2-4 vertical bands. Other fins grey to colourless.

Remarks

The generic assignment of *capostriatus* is problematic. This species belongs to the same genus as *Zonogobius flammeus* Smith, 1959 ,*Z. corallinus* Smith, 1959, *Z. avidori* Goren, 1979 and probably *Z. semidoliatus* (Valenciennes, 1837) and *Trimma eviotops* Schultz, 1943. Hoese (1979) placed *flammeus* and *corallinus* in the genus *Trimma*. Lobel (1979) adopted this classification although with some hesitation because *eviotops* differs in some characteristics from *Trimma caeseiura* Jordan and Seal, 1906, the type species of *Trimma*, and he wrote: «... if *T. eviotops* is removed from *Trimma* then the generic placement of these other species should also be carefully reconsidered since some are more similar to *T. eviotops* than to *T. caesiura* ...» (Lobel 1979, p. 10). Consequently, until the settlement of this confusion by a fundamental revision of this group we should avoid unnecessary and unreasonable changes in the generic placement of these species, and for this reason I use, for the moment, the traditional approach and place the new species in *Zonogobius*.

Z. capostriatus differs from all other congenerics by its unique colour pattern which is described above. In addition it differs from *Z. corallinus* by having less scales along the body and less segmented anal rays (30, 7 respectively in *Z. corallinus*). It differs from *Z. eviotops*, *Z. flammeus* and *Z. avidori* by having more scales along the body and less rakers on the lower limb of the first gill arch (24-26(27) ; 10-12 respectively in the three species). *Z. capostriatus* differs from *Z. semidoliatus* by having more scales along the body and more anal segmented rays (24-26, 7 respectively).

Oplopomus spinosus new species

(Figure 2)

Holotype : MNHN 1980-495, New Caledonia, Ile Maitre, north coast, 3-5 m depth, coral patches with muddy sand and sea grasses, Randall, Maugé & Bauchot, coll., 2-1 - 1971.

Measurements (in mm) : TL 43.5 ; SL 34.2 ; BD 8.8 ; HL 9.6.

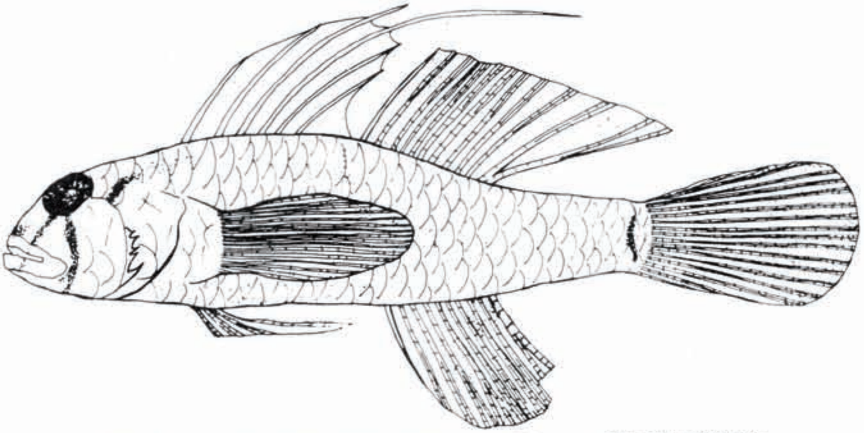

Fig. 2. – *Oplopomus spinosus* new species. Holotype MNHN 1980-495.

Description

LL 24 ; TR 7 ; PreD 4 ; D VI, I 10 ; A I 9 ; P 18. SL is 79 % of TL ; HL is 22 % of TL and 28 % of SL ; BD is 20 % of TL and 26 % of SL ; SD_1 is 23 % of TL and 30 % of SL ; SD_2 is 43 % of TL and 55 % of SL ; SA is 42 % of TL and 54 % of SL ; E is 26 % of HL.

Body and head compressed. Eye is a little high up, extends above the profile. Mouth slightly oblique, maxilla reaches below the front of eye : gill opening restricted, reaches to below pectoral base. Tongue rounded. Several rows of conical teeth on both jaws. The outer teeth are enlarged.

Five spines on preopercle, the lower one is thicker and longer than the others. First spines of both dorsal fins are strong and bony. The first dorsal fin is higher than the body. The third and fourth spines ends are lengthened by filaments, the latter being very long and extending to above the caudal peduncle. Th second dorsal fin, which inserts above the anus, is slightly higher than the body. The same is true of the anal fin. Pelvic fins, fused with a delicate membrane, reach the insertion of the anal fin. Pectoral fin extends to above the third anal ray.

The body and head are covered with scales. The predorsal scales are relatively large and reach the eyes. The anterior predorsal scale is the largest, its length is above 3/4 of eye diameter and its width only little less than eye diameter. The opercle and cheek are covered with large scales. The scales on the body are ctenoid while those on the head and the bases of the pectorals and pelvics are cycloid.

Colour (preserved)

Yellowish with a black vertical band down from eye and another dark band runs from eye to upper jaw. A narrow vertical strip on the end of the peduncle.

Remarks

Oplopomus spinosus differs from *Oplopomus oplopomus* (Valenciennes 1837) and *Oplopomus caninoides* (Bleeker 1852) by having less scales along the body (28-31 in both) and less predorsal scales (7-10 in *O. oplopomus* and 12 in *O. caninoides*). In addition, *O. spinosus* differs from *O. oplopomus* by possessing scales on cheek and opercle, and from *O. caninoides* by possessing 5 spines on preopercle (1-2 in *O. caninoides*).

Amblyeleotris novaecaledoniae new species

(Figures 3, 4, 5)

Holotype : MNHN 1980-492, New Caledonia, Ile Maitre, north coast, 3-5 m depth, coral patches with muddy sand and sea grasses, Randall, Maugé & Bauchot coll., 2.1.1979.

Measurements (in mm) : TL 78.8 ; SL 60.0 ; HL 15.4 ; BD 9.2.

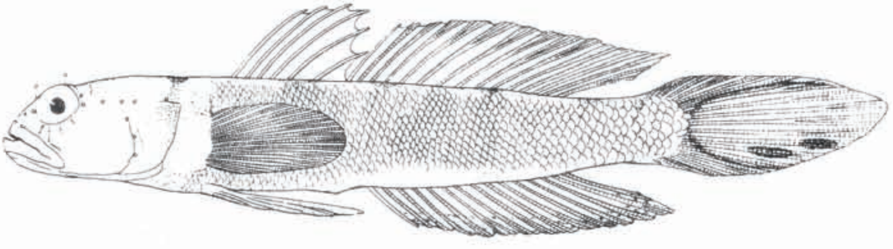

Fig. 3. – *Amblyeleotris novaecaledoniae* new species. Holotype MNHN 1980-492.

Description

LL 75 ; TR 22 ; D VI, I 14 ; A I 14 ; P 18 ; GR 1+1+8. SL is 76 % of TL ; HL is 20 % of TL and 26 % of SL ; BD is 12 % TL and 15 % of SL.

Body and head elongate and compressed. Eyes high up above dorsal profile. Mouth oblique. The maxilla extends to below mid eye. Conical teeth in several rows, on both jaws. The teeth in the inner and outer rows on both jaws are enlarged. A pair of large canines in inner row of lower jaw, and a pair of curved canines in outer row of upper jaw. Tongue truncate. Gill opening wide, reaches to below eye. Posterior nostril, a pore, close to eye. Anterior nostril, in a tube, about halfway from eye to upper lip.

The height of dorsal fins is more or less equal to body depth. The pectoral fin reaches to below the insertion of the second dorsal fin. The pelvic fins reach the anus. A delicate membrane unites 2/3 of the inner rays of both fins. No fraenum.

Cycloid scales on anterior part of body (approximately anterior to a vertical line from the insertion of the second dorsal fin). The scales posterior to this line

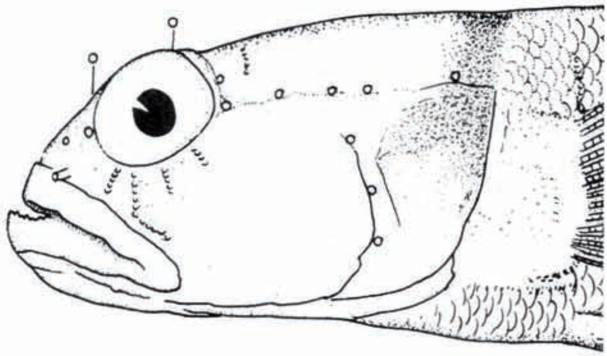

Fig. 4. – *Amblyeleotris novaecaledoniae* : Canal pores and sensory papillae.

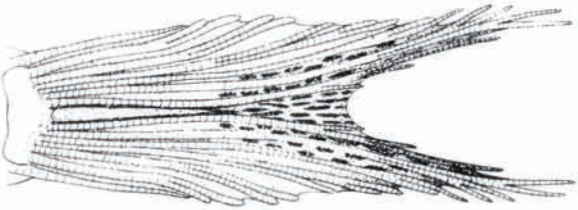

Fig. 5. – *Amblyeleotris novaecaledoniae* : Pelvic fins.

are ctenoid. Thorax scaled. No scales on the bases of the pectoral fins, on predorsal region and on the head.

Colour (preserved)

Body yellowish. Five broad transverse dark bands on body, the anterior bands are darker than the posterior ones. Dorsal and anal fins colourless. Dark lines along the rays of the pelvic fins and brown small spots on the membrane that unites them. Along the margin of the anal fin three parallel brown bands. A dark band runs along the upper and lower margins of the caudal fin . Two large elongate ocelli (see Fig. 3) on the lower part of the caudal fin.

Remarks

Amblyeleotris novaecaledoniae is closely related to *Amblyeletris agawarensis* Yanagisawa, 1978, but differs from this species in the following details (based on the description given by Yanagisawa, 1976 and 1978). Less scales along the body and less transverse rows (80-94 and 25-28 respectively in *A. agawarensis*). The shape of the pelvic fins of the two species is different (compared with Yanagisawa, 1976), the gill opening of *A. novaecaledoniae* is wider and this species possesses less gill raker on the lower limb of the first arch (10 in *A. agawarensis*). In addition there are some differences in the colour pattern. *A. agawarensis* lacks the elongate ocelli on its caudal fin and has a different colour pattern on its pelvic fins. In addition *A. novaecaledoniae* differs from *A. agawarensis* by the lack of a deep red spot behind the jaw and large dark spot on the base of the first dorsal fin.

Cryptocentrus lutheri Klausewitz 1960

Cryptocentrus lutheri Klausewitz, 1960, *Senckenbergiana biol.* 41 : fig. 6, Pl. 21-23; Sarso, Farasan Isl., Red Sea.
Cryptocentrus lutheri:Palmer, 1963, *Senckenbergiana biol.* 44 : 447-448.

Material : MNHN 1980-1068, 1 spec., New Caledonia, Anse Vata, sandy bottom, TL 34.0 ;SL 26.5 ; coll. J. Randall, 17.1.1979.

Description

LL 95 ;TR 29 ; D VI, I 10 ; A I 9 ;GR 4+1+10. SL 78 % of TL ; HL 21 % of TL and 27 % of SL ; BD 14 % of TL and 18 % of SL.

Body elongate and compressed. Head compressed. Eyes high up extending above the profile of the head. Gill opening reaches to below posterior preopercular margin. Scales minute and cycloid. Predorsal scales mostly covered by epidermis. Dorsal fins a little lower than body depth. Caudal fin rounded. Pelvic fins fully united, with a well developed fraenum.

Colour (preserved)

Body and head brown. Five relatively wide, and four very narrow light cross-bands on body.head. Fins brownish.

Remarks

Cryptocentrus lutheri is known from the Red Sea (Klausewitz 1960) and Persian Gulf (Palmer 1963), where it is quite common. The discovery of this species in New Caledonia greatly expands its known distribution.

Gnatholepis cauerensis (Bleeker, 1853)

Gobius cauerensis Bleeker, 1853, *Nat. Tijdschr. Ned. Indii*, 4 : 269 ; Cauer, Sumatra.
Acentrogobius cauerensis - Koumans, 1953, *in* : Weber and Beaufort, Fish. Indo. Austral. Archip., 10 : 68.
Gnatholepis cauerensis - Hoese and Winterbottom, 1979, *Ontario Mus. Occasional paper*, 31 : 10.

Material MNHN 1980-744, 1 spec., New Caledonia off recif Kinde, 12 m depth., reef outer slope, TL 46.2 ; SL 36.8 ; coll. Laboute & Menou, 10.1.1979.

Description

LL 30 ; TR 9 ; PreD 8 ; D VI, I 11 ; GR 1+0+3 ; SL 80 % of TL ; HL 20 % of TL and 25 % of SL ; BD 15 % of TL and 19 % of SL.

Body elongate. Body and head compressed. The upper profile of the head convex. Mouth subterminal, slightly oblique. Maxilla reaches to below mid eye. Two to four rows of conical teeth on both jaws. A pair of curved canines on lower jaw. Gill opening restricted, reaches to below pectoral base. Ctenoid scales on body. Cycloid scales on predorsal, opercule and cheek.

Dorsal fins lower than body depth. Pectoral fin, rounded, reaches to below the insertion of the second dorsal fin. Pelvic fins fully united. Fraenum well developed.

Colour (preserved)

Body and head yellowish. A vertical streak from eye to lower opercular edge. A narrow horizontal dark line running from eye backwards above upper opercular edge to the pectoral base. Longitudinal lines of dark spots on body, which the median one is much thicker. Rows of dark spots on caudal and dorsal fins.

Remarks

Gnatholepis cauerensis is widespread from the Red Sea and Eastern coast of Africa in the west to Japan and Hawaii in the east (Koumans 1953 ; Goren 1979). The discovery of this species in New Caledonia adds a new record to its distribution map.

Istigobius aestuarius (Smith, 1959)

Acentrogobius aestuarius Smith, 1959, *Ichthyol. Bull.* 13, p. 202. Fig. 18.
Istigobius aestuarius - Hoese and Winterbottom, 1979, *Ontario Mus. Occasional paper* 31 : 6.

Material : MNHN 1980-638, 1 spec., New Caledonia, Canala Bay, rotenone, muddy sand bottom ; TL 39 ; SL 32 ; Randall, Maugé & Bauchot coll., 7.1.1979.

Description

LL 29 ; TR 8 ; PreD 8 ; D VI, I 9 ; A I 9. SL 82 % of TL ; HL 21 % of TL and 26 % of SL ; BD 11 % of TL and 13 % of SL.

Body elongate. The head and anterior part of the body are subcylindrical. Mouth slightly oblique with maxillae extending to below 1/3 of eye. Several rows of conical teeth on both jaws. The outer teeth on both jaws are enlarged, the lateral pair on lower jaw are curved canines. Gill opening restricted, reaches to below pectoral fins. The body is covered with ctenoid scales, posteriorly to a vertical line from the bases of pectoral fins. The predorsal scales are cycloid. No scales on opercule and cheek. Dorsal fins lower than body depth. Pectoral fins reach to below the end of first dorsal fin. Pelvic fins fully united. Fraenum well developed.

Colour (preserved)

Body and head yellowish with a median line of five small dark blotches. An additional dark blotch on pectoral base. Dark blotches below eyes. Fins are grey to colourless.

Remarks

The present record to *I. aestuarius*, which has previously been found only in the western Indian Ocean, greatly expands its known distribution.

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